

PATENT

Navy Case No. 84,622
Application No. 09/864,373REMARKS

Applicants have amended claim 7 to clarify the activated matrix element, claim 12 to clarify the solid free phase of the analysis target area, and claim 15 has been amended to further clarify the analysis target area.

Claims 7-12, 15, and 17 stand rejected under 35 U.S.C. § 102(e) as anticipated by Narayanan (U.S. 6,593,148).

Specifically, the examiner indicates that Narayanan discloses an apparatus to transmit light to a "gel sandwich" having a laser diode assembly, a focusing lens, a narrow band pass filter, a collimating lens, and a laser diode. Further, the laser diode emits far red, near infrared, or infrared light which is collimated by the laser collimating lens and filtered through the narrow band pass filter and focused onto the gel sandwich. The detector is preferably an avalanche photodiode and the reference further discloses various dyes to use to mark DNA.

In response to this grounds for rejection, applicants argued that the Narayanan reference does not disclose or employ an activated matrix, and use of such a matrix within the description of Narayanan would be technically problematic. Therefore, any anticipation or obviousness rejection based on Narayanan is improper.

In the advisory action mailed related to said response, the examiner argues that the gel disclosed in Narayanan is activated when the sample is introduced into the system, and, therefore meets this limitation of the claims.

First, applicants believe that this is technically inaccurate. The Merriam-Webster Online dictionary defines the term "activated" as "to make (as molecules) reactive or more reactive" or "to convert (as a provitamin) into a biologically active derivative".

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Thus, an activated matrix is a matrix that has been made reactive, more reactive, or converted into a biologically active derivative. As is clear from this definition, the examiners assertion that introducing a sample into the gel sandwich as described in Narayanan as making the gel sandwich an activated matrix is incorrect. As discussed in the previous response by applicants, the gel in Narayanan is merely used to hold the fluid sample in place in order to "scan" the sample. The structure of the gel is not altered by the sample. Therefore, said gel could not be an activated matrix, based solely on the plain definition of the terms.

However, in order to clarify the term activated matrix, applicants have amended the claims to indicate that the matrix is activated by binding a capture molecule to the matrix (this molecule having an affinity for the molecule of interest as described in the specification). This amendment clearly differentiates the term from the gel disclosed in Narayanan.

Regarding claims 11, 12, and 15, it appears that the examiner has misunderstood applicants arguments regarding these claims, since the examiner has not fully addressed these arguments during any point of the prosecution of this application.

Applicants assert, as before, that it is impossible for one embodiment of an invention (as is set forth in Narayanan) to be used in an anticipation rejection for claims 11 and 12 as the examiner has employed in the present rejections. This is due to the fact that claims 11 and 12 reflect two separate embodiments of the present invention that comprise physically different elements. Therefore, one embodiment in the prior art could not anticipate both of these claims. Claim 11 relates to the embodiment of the present invention shown in figure 5 of the application. In this embodiment, the activated matrix

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is placed between two solid barriers and the sample is held therein. This area acts as the analysis target area in this embodiment. Claims 12 and 15 relate to the embodiment shown in figure 6 of the application. In this embodiment, the sample is allowed to flow through and past the activated matrix to extensions into a reservoir wherein a bubble of the sample is formed at the tip of the extensions. The bubble is the analysis target area, being free of solid phase.

This should make clear that the one embodiment of the invention disclosed in Narayanan could not anticipate both embodiments of the present invention as the examiner suggests.

Regarding the examiner's argument in the advisory action that the gel disclosed in Narayanan is free of solid phase because said gel is fluidic, applicants assert that a gel is not free of solid phase as the examiner suggests. The online Compact Oxford English Dictionary defines a gel as "a semi-solid colloidal suspension of a solid dispersed in a liquid. Clearly, this definition indicates that a gel is not free of solid phase. A gel is not a "fluid" or liquid as the examiner suggests, and, therefore, does not meet the limitation set forth in claim 12.

Regarding claim 15, applicants have requested at several points during prosecution of this case that the examiner specifically address the limitations set forth herein, to no avail. The Narayanan reference, or any other reference, does not disclose the formation of a bubble to act as a solid free phase analysis target area. However, the examiner has continued to reject claim 15, based on anticipation. The examiner has never included any rationale regarding this rejection, nor has the examiner pointed to any place within Narayanan where these limitations are set forth or even suggested. Thus,

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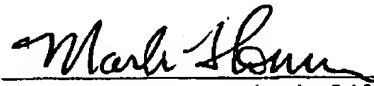
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applicants again request that the examiner provide some rationale for this rejection or remove said rejection.

Finally, as stated in previous responses, claims 18-20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Narayanan et al. in view of Hammock et al. (U.S. 6,395,562). In response, applicants merely repeat the above arguments as they clearly show that many of the limitations found within these claims are not found in the Narayanan reference. As noted above, there would be no impetus and also no reasonable way from a technical perspective to modify Narayanan to work with an activated matrix therein. Therefore, it is clear that Narayanan, in combination with any reference, does not make the present invention obvious.

Accordingly, applicants believe that claims 7-12, 15, and 17-20 are in condition for allowance and respectfully requests the examiner to withdraw all objections and rejections and allow said claims. Should the examiner need more information regarding this matter or have further suggestions regarding this application, feel free to call the undersigned at 401-832-6679.

Respectfully submitted,


Mark Homer, Reg. No. 41,848
Attorney for Applicants

OFFICE OF PATENT COUNSEL, CODE 000C
NAVAL UNDERSEA WARFARE CENTER
DIVISION NEWPORT
1176 HOWELL STREET, BLDG 112T
NEWPORT, RI 02841-1708